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Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) Programs

Good morning, everyone. Thank you for staying with us through the last day of DARPATech. I'm Connie Jacobs, the DARPA small business advocate and program manager for the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs.

How many of you are small businesses?

How many represent universities?

How many represent federally funded research and development centers?

Everyone look around! Forming partnerships is a good thing. Under the STTR Program, forming partnerships is mandatory.

Today I'm going to talk about money—lots of money, friendly money. To begin with, the fiscal year 2002 Small Business Innovation Research program budget for the 10 participating agencies is $1.4 billion. Billion, I said! Of that, the Department of Defense has almost $800 million. DARPA's SBIR budget, which is included in that $800 million, is approximately $50 million.

Five federal agencies participate in the Small Business Technology Program, which has a fiscal year 2002 budget of about $65 million. That is on top of the $1.4 billion in SBIR.

As I said, lots of "friendly" seed money for high-tech research and development programs. The DARPA STTR budget for 2002 is about $3 million.

Congress loves these programs. They reauthorized the SBIR Program through October 2008 and the STTR Program through October 2009. There is plenty of time to participate in both programs, if you aren't doing so already.

In addition to DoD's $800 million in SBIR, the National Institutes of Health has an SBIR budget of more than $450 million. The Departments of Energy, Commerce, Agriculture, Transportation, and Education and the National Science Foundation, NASA, and the Environmental Protection Agency make up the rest of the SBIR budget. All 10 federal agencies participating in the SBIR Program develop topics related to their specific needs and post them on their web pages.

DoD develops topics specific to warfighter needs and prepares two major solicitations each year. The spring solicitation, which is currently on our web site at www.darpa.mil, opened July 1 and will close August 14. It has about 400 topics from the Army, Navy, DARPA, the Missile Defense Agency, and the Special Operations Command. The fall solicitation, which is the largest, will be posted on the web on October 1. The Air Force, Navy, DARPA, and several other small Defense agencies will have topics in that solicitation. DoD is the only agency that posts the author's name, phone number, and e-mail for each topic, to encourage a technical dialogue. This permits the small business to ensure that they understand the topic and the potential end-user, which would be the Army, Navy, or Air Force, and helps the company to make an educated bid/no-bid decision. It also gives the small business community access to the programs managers who have the other 97.5 percent of the budget.

SBIR is restricted to small businesses with 500 employees or less. However, DoD statistics over the past 4 years show that approximately 70 percent of SBIR awards went to companies with 20 people or less. Included in this statistic, 42 percent of DoD awards went to companies with 9 people or less.

Many awardees are new-starts with no prior contracting experience with DoD. Companies must be 51 percent owned and managed by U.S. citizens, and all work must be conducted in the United States. Additionally, the principal investigator must be employed with the company 51 percent of the time.

Data rights developed under an SBIR contract belong to the company, with the exception of the small portion that is directly related to the Government field of use. The Federal Government will always have royalty-free rights for that portion *only*. We want the small business to be successful in commercializing items of benefit to both DoD and the public sector.

All equipment bought by small businesses with SBIR funds and any Government-furnished equipment loaned to them during the contract period can remain with the company for 2 years after the end of their last SBIR contract. This enables small businesses to continue working on projects and bring their effort closer to commercialization.

The SBIR program has three phases.

Phase I is where a small business thoroughly researches a selected topic, has detailed dialogues with the topic author, and compares the topic to their specific technological niche and business plan. If the company decides to participate, they must prepare a 25-page feasibility study. The study generally takes 8 months and $100,000 to complete. If the small business is successful in its feasibility study, DoD topic program managers invite a Phase II proposal.

A Phase II is the proof-of-principle phase where a prototype is developed. In general, this takes about 2 years and $750,000.

Phase III is where the small business acquires non-SBIR funds to continue the effort to commercialization.

SBIR proposals are evaluated against three criteria categories.

- The most important criteria are soundness, technical merit, and innovation and are generally worth about 50/60 points.

- The next criteria are the scientific and technical qualifications of the principal investigator. Everyone asks me, "Does the principal investigator have to have a Ph.D.?" The answer is no, but this person has to be highly qualified to perform the research and must have a commercialization vision.

- The last criteria are commercialization. For DoD, commercialization means developing something that helps the warfighter win the war. Commercialization also means having the vision to identify nonwarfighter applications for the technology and developing something for the public sector.

One of my favorite examples is a small company named Active Control Experts out of Massachusetts. They developed a piezoelectric vibration dampening material that would dampen the vibration in turbine engines. Their material transitioned to the Air Force. Active Control Experts then licensed the technology to K2, a snow ski manufacturer that now sells the Merlin IV, made out of that exact material, for about $750 a pair. I have a pair and love them.

Under SBIR, a small business can conduct all the research or it can choose to subcontract one-third of Phase I and one-half of Phase II. A small business should consider subcontracting if it brings value to its effort. Universities make great partners, especially historically black colleges and minority institutes. They have access to renowned subject matter experts and unique equipment and test facilities.

DARPA participates in both the DoD SBIR solicitations each year. DARPA program managers develop topics, evaluate the proposals, and make funding recommendations.

Our Phase I contracts are priced at $99,000 and last for about 8 months. We expect all the work to be completed in 6 months, and I use the additional 2 months to augment the effort if the program manager wants to keep the team working while they are developing their Phase II proposal.

Our Phase II proposals generally require 2 years and are usually priced at $750,000. However, we do have several Phase II efforts over $2 million. It is not unusual for DARPA program managers to augment their SBIR effort using their mission/core money. To date, DARPA program managers have added more than $4.5 million to SBIR efforts and $500,000 to STTR efforts.

DARPA collaborates with the Army, Navy, and Air Force and split-funds SBIR programs of mutual interest.

I am going to change the subject and move on to the Small Business Technology Transfer (STTR) Program. Five federal agencies participate in the STTR Program. Within DoD, the STTR Program is similar to the SBIR Program in that topics are developed by DoD program managers and consolidated into one DoD solicitation each year.

The DoD STTR solicitation hits the web every January. Remember, you are encouraged to have technical dialogues with the topic authors January 2 through February 28. The STTR solicitation officially opens the following Monday, March 3. The DoD STTR budget is about $30 million each year, of which DARPA's portion is about $3 million.

The STTR Program differs from SBIR on three distinct issues:

- To receive a contract award, the small business must have a research institute as a partner. A research institute is defined as a federally funded research and development center, such as the Sandia National Laboratory, the Oak Ridge National Laboratory, or any of the other Department of Energy laboratories, any university, or other any nonprofit.

- The small business must complete 40 percent of the research, and the partner must complete 30 percent of the research. The other 30 percent is at the discretion of the small business. They can bring in a third partner or increase their percentage and their partner's percentage, to equal 100 percent.

- The third difference is the employment of the principal investigator. Either the small business or the research institute can employ the PI. This allows university professors, for example, to keep their jobs with the universities and participate in high-tech research and development with a small business at the same time.

STTR is also a three-phase program. Phase I is a feasibility study, Phase II is the proof of principle, and Phase III is commercialization. Phase I programs are generally $99,000, and Phase II programs are $500,000.

In fiscal year 2004, the STTR Program will double in size, and the DoD STTR budget will increase to about $60 million. Also in FY 2004, the Phase II amount will increase to $750,000. DARPA's current STTR Program is about $3 million.

Our program managers develop about 10 topics each year, which are featured in the DoD STTR solicitation. As in SBIR, STTR topics include the author's name, phone number, and e-mail.

Please have technical dialogues with the topic authors before submitting a proposal.

In conclusion, DoD and DARPA have many SBIR and STTR success stories. One I particularly appreciate is the family of small robots developed by Foster Miller. The Foster Miller Team and our Mobile Tactical Robotics Team had 15 robots at the World Trade Center within 5 hours of the September 11 attack.

I now have three DARPA program managers, who will describe their favorite SBIR success stories. It is my pleasure to introduce Sam Wilson, who will discuss his SBIR success story with Aerovironment and our Micro Air Vehicle Program. Following Sam will be LTC Jim Bass, who will discuss his SBIR success story with Marine Acoustics, Inc., and their small, handheld multilingual system. And concluding our SBIR presentation will be LCDR Dylan Schmorrow, who will discuss his SBIR success story with Insightful Corporation.